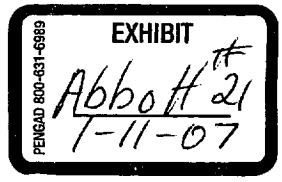
EXHIBIT 4



Determination of the Cost of Dispensing Pharmaceutical Prescriptions For the Texas Vendor Drug Program

Prepared for the
Texas Health and Human Services Commission
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Chapter
1

Executive Summary

Introduction

Under contract to the Texas Health and Human Services Commission, Myers and Stauffer LC performed a study of the cost of dispensing prescription medications to Medicaid recipients. This report includes a narrative of the methodologies and findings relevant to the survey of dispensing costs.

The dispensing cost study followed the methodology and used a survey instrument similar to those used by Myers and Stauffer in Medicaid pharmacy engagements in 18 other states. A stratified random sample of Texas pharmacy providers enrolled in the Medicaid program were surveyed; 703 pharmacies filed dispensing cost surveys that could be included in the study. All data received including the dispensing cost surveys were subject to extensive desk review procedures. Additionally, 31 pharmacies were selected for on-site field examinations to validate reported costs.

Summary of Findings

The significant findings of the study are as follows:

- **The statewide median cost of dispensing, weighted by Medicaid volume, was $5.95.**

Table 1.1 Dispensing Cost[A] for Texas Pharmacies

Pharmacies Included in Analysis [B]	650
Weighted Median [C]	**$5.95**
Weighted Mean [C]	$6.16
Unweighted Mean	$6.96

[A] Inflated to June 30, 2002.
[B] Excludes pharmacies that dispensed intravenous, home infusion or compounded prescriptions.
[C] Weighted by Medicaid volume.

- Average dispensing cost at certain pharmacy specialties was observed to be higher than dispensing cost at "typical" retail pharmacies. In particular we noted higher dispensing cost associated with pharmacies that provided services related to the dispensing of intravenous, home infusion and

compounded prescriptions.

- There was some association between dispensing cost and the urban or rural location of a pharmacy. Pharmacies in urban areas tended to have higher dispensing costs. This was noted to be particularly the case for labor related costs.

- No association was found between dispensing cost and unit-dose packaging or other measures of long term care dispensing activity; i.e., ambulatory and long term care pharmacies had similar mean costs of dispensing.

- No systematically higher costs associated with pharmacies that have a higher percentage of Medicaid prescription volume were found.

Conclusions and Recommendations

The Commission's current pharmacy dispensing fee results in average payments that are slightly higher than the median cost of dispensing prescriptions[1]. Any overall evaluation of the adequacy of current pharmacy reimbursement rates should consider findings related to dispensing cost in tandem with an analysis of ingredient reimbursement rates and the cost pharmacies incur acquiring prescription medications. Similarly, possible modifications to reimbursement policies should consider both dispensing and acquisition cost aspects of reimbursement. Should the Commission desire to modify its current dispensing fee, several options are available:

1) Continued Use of a Variable Dispensing Fee:
The Commission currently utilizes a dispensing fee that is variable based upon the ingredient cost of the medication being dispensed (i.e. the inventory management factor). A distinct disadvantage to the variable dispensing fee is that there is little correlation between the actual cost to dispense and the cost of the medication being dispensed provided that similar medication forms are being compared (e.g. dispensing a prescription of 30 pills of a low-cost generic medication requires essentially the same commitment of resources as dispensing a prescription of 30 pills of an expensive brand-name product). Furthermore, increases in drug cost (whether due to manufacturer price increases or the introduction of new and more expensive products) causes increases in the dispensing fee at a rate that is typically higher than the rate of inflation for overhead and labor dispensing costs.

One advantage of the variable dispensing fee methodology is that dispensing fees paid for certain specialty products that require special preparation (e.g. intravenous and home infusion products) are higher on average due to the high

[1] While the Commission's base dispensing fee is $5.27, the actual average dispensing fee is approximately $6.10 to $6.40 with the inventory management factor add-on to the dispensing fee.

cost of the drug ingredients typically used in these prescriptions. However, the current overall cap on the dispensing fee of $200 does appear to be out of proportion to actual dispensing costs observed.

2) Flat Rate Dispensing Fee:
Most states and private insurers use a single, flat rate dispensing fee. These fees are administratively simple to use and are readily understood by all providers. Should the Commission decide to set such a fee, it would be appropriate to set the fee considering the actual dispensing costs incurred in an efficient pharmacy operation.

The dispensing cost study considered several pharmacy attributes to determine if dispensing costs were significantly different based on variables of pharmacy affiliation, location, and specialty. For many tested attributes, we did not observe statistically significant differentials in dispensing cost. We did, however, observe systemically higher dispensing cost associated with pharmacies that specialize in dispensing intravenous and compounded prescriptions. Several significant issues related to these pharmacy specialties are addressed in the study, and one possibility for the Commission to consider is to set multiple flat rate pharmacy dispensing fees specific to certain specialties. We note, however, that many Medicaid pharmacy programs have successfully operated using a single dispensing fee for all pharmacy types. A single dispensing fee must be considered in conjunction with ingredient reimbursement such that overall levels of reimbursement are sufficient to guarantee sufficient participation of various pharmacy specialties.

3) Combination of a Variable Dispensing Fee and a Flat Rate Dispensing Fee
Alternatively, the Commission could evaluate implementing a flat rate dispensing fee to be used in "traditional" pharmacy settings, while maintaining the variable dispensing fee for use among certain pharmacy specialty types. Such a combination would maintain the most advantageous aspects of the variable dispensing fee, yet set the reimbursement for the vast majority of "traditional" prescriptions in a manner consistent with the most widely utilized dispensing fee methodology (i.e., a flat rate).

Chapter
2

Program Overview

Texas Medicaid Pharmacy Program Overview

The Texas Medicaid program includes a benefit for prescription drugs. This program allows recipients access to many commonly prescribed drugs through its formulary.

The current pharmacy dispensing fee is based on the following formula:

$$\text{Dispensing Fee} = \frac{(\text{Est. Drug Ing. Cost}) + (\text{Est. Disp. Exp.})}{(1 - (\text{Inventory Mgmt. Factor}))} - (\text{Est. Drug Ing. Cost}) + (\text{Delivery Fee})$$

The "estimated dispensing expense" currently in use is $5.27, the "inventory management factor" is 2.0% and the "delivery fee[2]" is $0.15. The calculation of the "estimated drug ingredient cost" is subsequently described. The total dispensing fee is limited to $200 per prescription.

An analysis of the Texas dispensing fee formula in conjunction with recent Medicaid utilization leads to the conclusion that the average dispensing fee paid for Texas Medicaid pharmacy claims is approximately $6.10 to $6.40 (based on prescriptions of "average" drug ingredient cost).

Texas Medicaid ingredient reimbursement is based on the following provisions:

- Wholesale estimated acquisition cost (WEAC) or direct estimated acquisition cost (DEAC) based on the pharmacist's usual source of purchasing. WEAC and DEAC are established by the Health and Human Services Commission using market sources including published drug prices and pricing reported directly from drug manufacturers. In practice, WEAC and DEAC are typically derived from benchmark pricing such as "Average Wholesale Price" (AWP) and "Wholesale Acquisition Cost" (WAC) which is reported by drug manufacturers to the Commission.

[2] The delivery fee is paid on all prescriptions filled for pharmacies offering no-charge delivery service.

- Texas Maximum Allowable Ingredient Cost (TMAC) or Federal Upper Limit (FUL), as applicable for multi-source products[3]. A physician may override the FUL or TMAC limits by indicating "brand medically necessary" on a prescription for multi-source drugs with an upper limit price.

Regardless of ingredient cost basis, the overall dispensing fee and ingredient reimbursement formula amount is limited to a maximum of the provider's usual and customary charge to the general public.

Reimbursement policies vary slightly for certain special classes of medications. For example, over-the-counter (OTC) products are reimbursed at 150% of the estimated acquisition costs (based on WEAC or DEAC) with no additional dispensing fee.

Approximately 3,700 pharmacy providers participate in the Texas Medicaid drug program. Approximately 60% of the stores are chain-affiliated, and 40% are independently-owned stores. However, independent pharmacies fill approximately 55% of Texas Medicaid prescriptions. Among Texas Medicaid providers, the mean annual Medicaid prescription volume is approximately 6,500 prescriptions. This mean is impacted by a small number of pharmacies filling over 50,000 Medicaid prescriptions per year. The median annual Medicaid prescription volume is much less, roughly 3,000 prescriptions.[4]

Drug Utilization Profile

Myers and Stauffer obtained a claims summary file from the Texas Health and Human Services Commission. This file summarized pharmacy claims processed for calendar year 2001. Information from this file indicates that the Medicaid program reimbursed approximately:

- 21,000 drug products.
- 28.2 million prescriptions.
- $1.4 billion for prescription drug products.

Although approximately 84% of the 21,000 drug products and 61% of the 28.2 million prescriptions were multi-source drug products, these products account for only 28% ($384 million) of the expenditures. The majority of the program's expenditures, $997 million, were for single source drug products. The proportion of drug expenditures that is for single source drugs has increased in recent years

[3] Reimbursement for many multi-source drug products is limited by FUL prices. For drugs on the FUL list, CMS semiannually reviews and updates the FUL drug list. Each FUL equates to 150% of the lowest wholesale price listed in any of the various published compendia of cost information of drugs. Reimbursement for a limited number of multi-source products is limited by the TMAC prices that are set internally by the Health and Human Services Commission.

[4] Statistics regarding pharmacies that participate in the Vendor Drug Program were derived from a pharmacy provider file obtained from the Health and Human Services Commission. Further descriptions of these data are provided in Chapter 3 under the heading "Pharmacy Sample Selection."

as new and more expensive pharmaceutical products continue to become available.

The following table summarizes the makeup of the program's expenditures by single source and multi-source categories. The table also subdivides drug products based on whether the product has a Federal Upper Limit or a Texas Maximum Allowable Cost.

Table 2.1 Summary of Texas Medicaid Pharmacy Program Utilization

	Product Type	Number of Drug Products [1]	Percent of Total Number of Drug Products	Number of Rxs [2]	Percent of Total Number of Rxs	Amount Reimbursed [2]	Percent of Program Expenditures
	Single Source Products	3,391	16%	11.0	39%	$997.0	72%
Multi-Source Products	Products with an FUL/TMAC [3] Price	9,773	46%	10.0	36%	$195.6	14%
Multi-Source Products	Products without an FUL/TMAC Price	7,897	38%	7.1	25%	$188.4	14%
Multi-Source Products	Subtotal: Multi-Source Products	17,715	84%	17.1	61%	$384.0	28%
	Total: All Products	21,061	100%	28.2	100%	$1,381.0	100%

[1] Based on unique NDC.
[2] In millions
[3] Existence of a FUL/TMAC price is based upon August 2002 formulary file from the Health and Human Services Commission.
Note: Utilization figures were obtained from the Health and Human Services Commission and are for Calendar Year 2001.

Chapter
3

Dispensing Cost Survey

The two primary components for reimbursement of pharmaceuticals are drug ingredient cost and the dispensing fee. The dispensing, or professional, fee is paid to pharmacies to cover their overhead and labor costs. Federal regulations at 42 CFR 447.331-333 require states to establish a reasonable dispensing fee for their Medicaid pharmacy programs and to document their pharmacy reimbursement methodology in their state plan.

Dispensing fees for Medicaid programs nationally have typically been based on an analysis of costs incurred by pharmacies within the state and tend to vary somewhat from state to state. In order to determine costs incurred to dispense pharmaceuticals to Medicaid recipients in Texas, Myers and Stauffer utilized a survey method consistent with the methodology of the previous surveys conducted by Myers and Stauffer in 18 states.

Methodology of the Survey

Development of Methodology

Survey methodologies used by the firm have been developed and refined since our first dispensing cost study engagements in the 1970's. The cost accounting principles used in the study are, however, standard to the health care industry and are similar to methods other experts have used to study pharmacy dispensing cost. Please refer to Appendix A for references to other pharmacy studies and the accounting principles that provide background to the methodologies used in this study.

Pharmacy Sample Selection

Myers and Stauffer received a pharmacy provider file from the Health and Human Services Commission that included the following information:

- Medicaid provider numbers
- Provider names
- Provider address and phone number information

- Pharmacy location by county
- Pharmacy location: urban versus rural status
- Pharmacy "provider type description"
- Prescription claim count for calendar year 2001
- Prescription claim dollar amount for calendar year 2001

Based on an analysis of predicted statistical variation, expected participation rates and other considerations, Myers and Stauffer developed a survey plan that involved soliciting participation in the dispensing cost survey from approximately 900 pharmacies. The selection criterion for the sample was primarily random. However, certain stratification protocols were implemented to promote adequate representation of various pharmacy specialties and geographic locations. Myers and Stauffer determined that certain pharmacy traits were broadly distributed, and were therefore appropriately captured in adequate numbers in a random sample. There were also some attributes for which better representation was obtained via a stratification process.

After importing the pharmacy provider data into internal database formats, Myers and Stauffer performed a process of making preliminary identifications of pharmacy specialties. Various "flags" were created for the purpose of performing appropriate sample stratification. Pharmacy attributes that were flagged are as follows:

- **Chain versus Independent Affiliation**
  Myers and Stauffer made a preliminary determination of chain versus independent based on a preliminary visual inspection of the provider file. As applicable, Myers and Stauffer staff also utilized their experience with and exposure to various national chain organizations. For the purposes of this project, a chain was considered an entity with five or more stores nationally.

- **Urban versus Rural Location**
  Myers and Stauffer used the urban versus rural status designated in the provider file by the Commission. For informational purposes, Myers and Stauffer used zip code data from the U.S. Census Bureau to crosswalk the pharmacy location to individual Texas counties. A county was deemed to be "urban" based on its location in a "Metropolitan Statistical Area" (MSA) as used by the Census. Other counties were considered "rural." Pharmacies not physically located in the state of Texas were not classified as to urban or rural status and are merely referred to as "out of state." This process determined that the urban versus rural status assigned by Commission were reasonably consistent with Census Bureau designations.

- **Long-Term Care Pharmacy Provider Status**
  The pharmacy provider data included a pharmacy description field as designated by the Commission. One code is used to identify pharmacies dispensing to nursing facility residents. Such pharmacies were identified with

the long-term care flag. A few additional providers were so classified based on name recognition of the provider.

- **Provision of Intravenous Prescription Services**
  Myers and Stauffer used the pharmacy description field to identify pharmacies that appear to specialize in home infusion services or otherwise provide intravenous prescription dispensing services. A few additional providers were so classified based on name recognition of the provider.

- **Hospital Based Pharmacies**
  Based on prior discussions with the Commission staff, it was determined that the dispensing cost survey would not include pharmacies that are hospital-based. Based on previous experience, Myers and Stauffer has learned that it is extremely difficult to get meaningful data from these types of pharmacies due to the types of accounting records maintained in hospital environments. Myers and Stauffer visually examined pharmacies that had names or designations in the description field indicating that they were hospital based.: Pharmacies so identified were not included in subsequent sample selection procedures. There were approximately 60 pharmacies excluded based on this criteria. Collectively, these pharmacies account for approximately 1.5% of prescriptions dispensed for the Texas Medicaid Vendor Drug Program.

Low Volume Exclusion from Pharmacy Sample
Prior to selecting any pharmacies into the random sample, Myers and Stauffer excluded all pharmacies that dispensed fewer than 250 prescriptions and received payments of less than $10,000 during calendar year 2001. It has been our experience that these pharmacies with low volume of Medicaid prescriptions often are out-of-state, newly opened, or recently closed pharmacies. As such, these pharmacies do not represent the norm of Medicaid participating providers. Additionally, our experience has shown that due to their low Medicaid volume, many of these pharmacies would be reluctant to spend the time and effort required to participate in the survey. These pharmacies also have little impact on the overall cost structure of pharmacies in the Medicaid pharmacy program (and conversely are often only minimally impacted by the Medicaid program). Approximately 290 pharmacies were excluded based on this criteria. Collectively, all of these low Medicaid volume pharmacies dispensed less than one-tenth of one percent of Medicaid prescriptions in calendar year 2001.

Stratification Protocols based on Pharmacy Specialty
Based on our preliminary analysis, there were certain specialties that were not broadly distributed among the pharmacy population (exclusive of the low Medicaid volume pharmacies previously described). In particular we noted that there were 56 pharmacies that met the criteria for the long-term care pharmacy provider designation. Also, there were only 43 pharmacies identified that dispensed intravenous prescriptions as a significant portion of their volume. Myers and Stauffer believed that in order to ensure adequate representation of

specialties represented by these flags, 100% of the pharmacies so identified should be included in the sample.

Stratification Protocols Based on Pharmacy Location
It was noted that there were 642 pharmacies located in counties designated as "rural" in the provider population eligible for inclusion in the survey. The attribute of being located in a rural location appeared to be somewhat broadly distributed and suitable for random selection without stratification. However, Myers and Stauffer determined that a random sampling of rural pharmacies could cause certain regions of the state to have a low representation in the sample. Therefore, we developed a computer algorithm to ensure that each Texas county was represented by at least one pharmacy (assuming that there was at least one Medicaid pharmacy in the county that did not meet the low volume or hospital-based exclusion criteria).

Random Selection
After including the stratification groups identified previously, a computer algorithm randomly selected pharmacies for inclusion in the survey sample.

Mailing Procedures

Survey forms were mailed on April 23, 2002 to 890 pharmacy providers currently enrolled in the Texas Medicaid program that were selected from the sampling methodology. Each pharmacy received a copy of the cost survey (Exhibit 1), a list of instructions (Exhibit 2), a letter of introduction from the Commission (Exhibit 3), a letter of explanation from Myers and Stauffer (Exhibits 4 and 5) and a business reply envelope.

Survey Participation

Of the 890 surveyed pharmacies, 34 pharmacies were determined to be ineligible to participate. Providers were deemed ineligible if they had closed their pharmacy, had a change of ownership, or had less than six months of cost data available.

Concerted efforts to encourage maximum participation were made by various parties concerned with the success of the survey. An official letter explaining the purpose of the study was sent to the sampled pharmacy providers by the Commission. The cost survey forms and instructions and a letter of explanation from Myers and Stauffer offered pharmacy owners the option of having Myers and Stauffer complete certain sections of the survey form if copies of financial statements and/or tax returns were supplied. A toll-free telephone number was listed on the survey form, and pharmacists were urged to call to resolve any questions they had concerning completion of the survey form.

By the original filing deadline of May 10, 2002, 63 cost surveys had been received. In an effort to increase the response rate, surveys were accepted after the due date and Myers and Stauffer sent letters to non-responding pharmacies encouraging them to participate in the survey (Exhibits 6 and 7). Additionally, key staff at various chain pharmacy headquarters were contacted by telephone.

As is typical with these projects, many of the submitted cost surveys contained errors or were incomplete. For cost surveys with such errors or omissions, the pharmacy was contacted for clarification. There were some cases in which issues on the cost survey were not resolved in time for inclusion in the final analysis. Ultimately, 703 surveys were entered into a database and used in our analysis of dispensing costs.

The following table, 3.1, summarizes the cost survey response rate.

Table 3.1 Dispensing Cost Survey Response Rate

Type of Pharmacy / Pharmacy Attribute	Total Medicaid Participating Pharmacies	Pharmacies Receiving Cost Surveys	Pharmacies Exempt from Filing	Eligible Pharmacies	Usable Cost Surveys Received	Response Rate
Chain	2,240	472	21	451	396	88%
Independent	1,457	418	18	400	307	77%
Urban[1]	2,951	655	32	623	505	81%
Rural[1]	654	228	7	221	195	88%
Institutional[2]	62	56	3	53	46	87%
Intravenous[3]	59	43	3	40	19	48%
All Pharmacies[4]	**3,697**	**890**	**39**	**856**	**703**	**82%**

[1] Urban versus rural status determined for in-state pharmacies only.

[2] Initial determination of institutional pharmacy status was based on a review of the Texas Medicaid provider file sent by the Health and Human Services Commission. Review of submitted cost reports later indicated that some pharmacies originally considered to be "institutional" did not meet the criteria that is typically implied with the term. Analyses subsequent to the collection of cost report data modified classification criteria based on self-reported statistics.

[3] Initial determination of intravenous dispensing status was based on a review of a sample of the Texas Medicaid provider file sent by the Health and Human Services Commission. Analyses subsequent to the collection of cost report data determined intravenous dispensing status based on self-reported sales statistics.

[4] The pharmacy types in the table include some overlap, therefore the total for all pharmacies is not a sum of the above categories.

Reporting Bias

For the traits listed in Table 3.1, the sample of 703 pharmacies was tested to determine if it was representative of the population of Medicaid provider pharmacies. Since the response rate of the sample pharmacies was less than 100 percent, the possibility of bias in the responding sample should be considered. To measure the likelihood of this possible bias, chi square (χ^2) tests were performed. Among other attributes, a chi square test was used to determine whether the final sample was independent with respect to traits that were assumed to be broadly distributed.

Of the 703 cost surveys, 307 were from independent pharmacies and 396, or 56%, were from chain pharmacies. We observed slight differences in the response rates for chain and independent pharmacies. There are several factors that appear to have caused this phenomenon. First, the decision of a chain organization to file typically meant filing for all, or at least the majority, of its pharmacies included in the pharmacy sample. There were eleven large pharmacy chains in Texas that filed usable cost surveys for five or more stores, and these eleven chain organizations collectively supplied approximately 379 usable surveys. The decision for an independent pharmacy to file, however, typically only affected one, or on some occasions, two stores. Chain organizations typically have corporate accounting offices or third party program managers in place to handle tasks such as completing cost surveys. Owners of independent pharmacies, however, are often involved in many facets of their business operation, and consequently are in some cases less likely to have the time or resources available to complete a cost survey. An additional reason for a greater number of chain pharmacy surveys being available was an increased difficulty of contacting independent pharmacists to resolve any issues involved with their cost report. Chain pharmacies, alternatively, could be contacted through their corporate offices where again, mechanisms were in place to deal with our inquiries.

Other characteristics (e.g. specialty pharmacy straits) of the final sample are represented in slightly different proportions than exist in the population of Texas Medicaid provider pharmacies due to the stratification techniques used in the sample selection process.

Due to the use of these stratification protocols and the possibility of reporting bias, further analysis is indicated to determine whether there is a significant difference in dispensing costs of the various pharmacy characteristics. This issue is further addressed in the "Analysis and Findings" section of this chapter.

Receipt and Review Procedures

For confidentiality purposes, each pharmacy was randomly assigned a four-digit identification number and each cost survey was carefully examined. This review identified cost surveys considered incomplete, and pharmacies submitting these cost surveys were sent a "Request for Additional Information" letter specifying the information necessary for completion (Exhibit 8) or were contacted by telephone.

Field Examination Procedures

A total of 31 pharmacies were selected for a field examination. The selection was primarily random, but geographic location was taken into consideration. A letter was sent to each selected pharmacy explaining the selection process, the time period during which the field examination would take place, and the necessary data to have available. Each pharmacy was then contacted by telephone for

further explanation of the field examination and confirmation of the time and date. An examination file was prepared for each of the pharmacies containing a uniform field examination program, a copy of the completed reviewed cost survey, and other necessary work papers.

Following the actual visit to the pharmacy, work papers were completed by making a second examination of each file to ensure that all necessary information had been obtained. Follow-up letters were sent to pharmacies visited, expressing appreciation for the time and cooperation of pharmacy personnel. Each work paper file was reviewed for quality assurance. Results of the field examinations showed no significant bias in overstating or understating costs reported on the cost survey (Exhibit 9).

Cost Finding Procedures

Cost finding is the process of recasting cost data using rules or formulas in order to accomplish an objective. In this study, the objective is to estimate the cost of dispensing prescriptions to Medicaid recipients. To accomplish this objective, some pharmacy costs must be allocated between the prescription dispensing function and other business activities. This process identified the reasonable and allowable costs necessary for prescription dispensing to Medicaid recipients.

Most pharmacies are also engaged in lines of business other than the dispensing of prescription drugs. For example, many pharmacies have a retail business with sales of over-the-counter (OTC) drugs and other non-medical items. Some pharmacies are involved in the sale of durable medical equipment. The existence of these other lines of business necessitate that procedures be taken to isolate the costs involved in the prescription dispensing function of the pharmacy.

Dispensing cost consists of two components: overhead and labor. The cost finding rules employed to determine each of these components are described in the following sections.

Overhead Costs

Overhead cost per prescription was calculated by summing the allocated overhead of each pharmacy and dividing this sum by the number of prescriptions dispensed. Overhead expenses originally reported for the entire pharmacy were allocated to the prescription department based on either:

- Sales ratio (prescription sales divided by total sales)
- Area ratio (prescription department floor space (in square feet) divided by total floor space)
- All (100%)
- None

Overhead costs that were considered *entirely prescription-related* include:

- Prescription department fees
- Prescription delivery expense
- Prescription computer expense
- Prescription containers and labels (For many pharmacies the costs associated with prescription containers is captured in their cost of goods. Subsequently, it was often the case that a pharmacy was unable to report expenses for prescription containers. In order to maintain consistency, a standardized allowance for prescription containers was determined after consultation with several pharmacists. See Exhibit 10.)
- Certain other expenses that were separately identified on lines 27-29[5] (see the cost survey in Exhibit 1)

Overhead costs that were *not allocated as a prescription expense* include:

- Income taxes[6]
- Bad debts[7]
- Advertising
- Contributions[8]

Certain costs reported on Lines 27, 28, and 29 were occasionally excluded. An example is freight expense, which usually relates only to nonprescription purchases or cost of goods sold.

The remainder of the costs was assumed to be related to *both prescription and nonprescription sales*. Joint cost allocation is necessary to avoid understating or overstating the cost of filling a prescription.

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[5] Expenses that were considered entirely prescription-related were transferred to Line 28. One example is continuing professional education for a pharmacist.

[6] Income taxes are not considered an operational cost because they are based upon the profit of the pharmacy operation. Although a separate line was provided for the state income taxes of corporate filers, it was not allowed as a prescription cost in order to afford equal treatment to each pharmacy, regardless of the type of ownership.

[7] Bad debts were not considered a prescription-related expense since they are revenue offsets arising through an accrual recognition of revenues which are later found to be not collectible. Disallowing this expense also afforded equal treatment to providers, irrespective of their method of accounting.

[8] Individual proprietors and partners are not allowed to deduct contributions as a business expense for federal income tax purposes. Any contributions made by their business are deducted along with personal contributions as itemized deductions. However, corporations are allowed to deduct contributions as a business expense for federal income tax purposes. Thus, while Line 19 on the cost report recorded the business contributions of a corporation, none of these costs were allocated as a prescription expense. This, again, afforded equal treatment for each type of ownership.

Those overhead costs allocated on the ratio of the *floor space* (as previously defined) include:

- Depreciation
- Real estate taxes
- Rent
- Repairs
- Utilities

The costs in these categories were considered a function of floor space. For example, the larger the facility, the higher the rent, if other factors are considered equal. The floor space ratio was increased by 50 percent from that reported on the original cost survey to allow for waiting area for patients and prescription department office area. The resulting ratio was adjusted downward, when necessary, not to exceed the sales ratio (in order to avoid allocating 100% of these costs in the rare instance where the prescription department occupies the majority of the area of the store).

Overhead costs allocated using the *sales ratio* include:

- Personal property taxes
- Other taxes
- Insurance
- Interest
- Accounting and legal fees
- Telephone and supplies
- Dues and publications

Labor Costs

Labor costs are calculated by allocating total salaries, payroll taxes, and benefits based on the percent of time spent in the prescription department. The allocations for each labor category were summed and then divided by the number of prescriptions dispensed to calculate labor cost per prescription. There are various classifications of salaries and wages requested on the cost survey (Lines 31-44) due to the different cost treatment given to each labor classification.

An Example:

An employee pharmacist spends 90 percent of their time in the prescription department. The 90 percent factor would be modified to 95 percent:

$$\frac{(2)(.9)}{(1+.9)}$$

Thus, 95 percent of the reported salaries, payroll taxes, and benefits would be allocated to the prescription department. It should be noted that most employee pharmacists spent 100 percent of their time in the prescription department.

The total salaries, payroll taxes, and benefits of employee pharmacists (Lines 34-38) were multiplied by a factor based upon the percent of prescription time. Although some employee pharmacists spent a portion of their time performing nonprescription duties, it was assumed that their economic productivity when performing nonprescription functions was less than their productivity when performing prescription duties. Therefore, a higher percentage of salaries, payroll taxes, and benefits was allocated to prescription labor costs than would have been allocated if a simple percent of time allocation was utilized. Specifically, the percent of prescription time indicated was multiplied by two and divided by the percent of prescription time plus one.

The allocation of salaries, payroll taxes, and benefits for all other prescription employees (Lines 39-43) was based directly upon the percentage of time spent in the prescription department as indicated on the individual cost survey. For example, if the reported percentage of prescription time was 75 percent and total salaries were $10,000, then the allocated prescription cost would be $7,500.

Owner Compensation Issues

The allocation of salaries, payroll taxes, and benefits of the owner pharmacists (Lines 31-33) was based upon the same modified percentage as that used for employee pharmacists. However, limitations were placed upon the allocated salaries, payroll taxes, and benefits of owner pharmacists. Since amounts shown for owner pharmacists are not historical costs that have arisen from arm's length negotiations, they are not similar to other costs. A pharmacy owner has a different attitude toward other expenses than toward his/her own salary. In fact, owners often pay themselves above the market costs of securing the services of an employee pharmacist. This excess effectively represents a withdrawal of business profits, not a cost of dispensing. Some owners may underpay themselves for business reasons, which would also misrepresent the true dispensing cost.

A factor considered in determining the allocation of owner's salaries was the variability in productivity. For example, one owner pharmacist may dispense 5,000 prescriptions per year while another may dispense 30,000. Those owner pharmacists who dispensed a greater number of prescriptions were allowed a higher salary than were owner pharmacists who dispensed a smaller number of prescriptions. Since variance is not nearly as great with respect to employee pharmacists, the owner pharmacist's salary was subjected to limits based upon employee pharmacists' salaries per prescription.

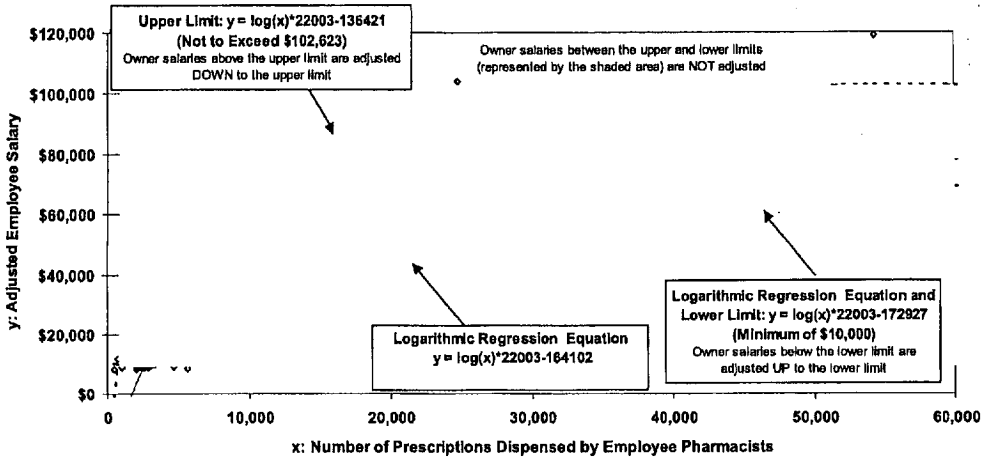
Determining Owner Compensation Allowances

To estimate the cost that would have been incurred had an employee been hired to perform the prescription-related functions actually performed by the owner, a

statistical regression technique was used. A bivariate plot shows the correlation between an independent (predictor) variable and a dependent (predicted) variable. The upper and lower limits on owner pharmacist salary were determined from a bivariate regression (Chart 3.1)[9]. In order to accurately reflect the trend of decreasing marginal costs with increasing volume, a regression technique that fit the bivariate data to a logarithmic curve was used. The resulting regression equation to predict pharmacist labor cost at varying amounts of work performed is:

***Labor cost* = 22,003 *X ln (number of prescriptions dispensed*[10]*)* – 164,102**
(where ***ln*** represents the natural logarithm function)

Chart 3.1 Owner Pharmacist Limits Based on Employee Pharmacist Salaries



This equation was used to establish limits for allocating owner pharmacist costs. There was variation in actual employee salaries both above and below this regression line. This variation is measured by the equation's *standard error of the estimate*, $16,828. The standard error of the estimate was used to construct upper and lower limits of owner pharmacist labor cost:

***Upper Limit* = 22,003 *X ln (number of prescriptions dispensed)* – 136,421**
***Lower Limit* = 22,003 *X ln (number of prescriptions dispensed)* – 172,927**

These two constraints effectively set upper and lower thresholds at approximately the 30th and 95th percentiles of volume adjusted employee salaries. An additional constraint is a $102,623 maximum annual salary and a $10,000 minimum salary.

[9] Employee pharmacist salary per prescription was used to set limitations on owner pharmacist salary estimates due to the "arm's length" nature and lack of variance in employee productivity compared with owner productivity.

[10] The number of prescriptions filled by the owner pharmacist was determined by multiplying the percent of owner-filled prescriptions (Lines 31-33 of the cost report) by the total number of prescriptions dispensed (Line a).

These amounts are based on the 30th and 95th percentile of volume adjusted employee salaries.

There is no reason to believe that managerial or clerical duties performed by the nonpharmacist owners were more valuable to the prescription dispensing function than for other functions. As with other owners, the amount shown for salaries, payroll taxes, and benefits was not a result of arm's length negotiations. Therefore, an upper limit of $35,000 and a lower limit of $17,000 were placed upon these prescription costs. These limits were chosen based on experience from this survey and prior surveys. No adjustment was made to the percentage of prescription time factor for owner nonpharmacists (Lines 31-33).

Overall Labor Cost Constraints

An overall constraint was placed on the proportion of total reported labor that could be allocated as prescription labor. The constraint assumes that a functional relationship exists between the proportion of allocated prescription labor to total labor **and** the proportion of prescription sales to total sales. It is also assumed that a higher input of labor costs is necessary to generate prescription sales than nonprescription sales, within limits.

The parameters of the applied labor constraint are based upon an examination of data submitted by all pharmacies. These parameters are set in such a way that any resulting adjustment affects only those pharmacies with a percentage of prescription labor deemed unreasonable. For instance, the constraint would come into play for an operation that reported 75 percent pharmacy sales and 100 percent pharmacy labor (obviously, some labor must be devoted to generating the 25 percent nonprescription sales).

To determine the maximum percentage of total labor allowed, the following calculation was made:

$$\frac{0.3(\text{Sales Ratio})}{0.1+(0.2)(\text{Sales Ratio})}$$

Inflation Factors

Pharmacies were requested to supply financial and statistical data from their "most recent fiscal year ending on or before December 31, 2001" (see survey instructions, Exhibit 2). There was some variation in the financial reporting cycles for which pharmacy data was submitted (see Exhibit 11). However, the vast majority of pharmacies reported information for fiscal years ending in 2001 or early 2002.

Due to the variation in fiscal reporting cycles, all allocated costs for overhead and labor were totaled and multiplied by an inflation factor. Inflation factors are

intended to reflect cost changes from the middle of the reporting period of a particular pharmacy to a common fiscal period ending December 31, 2002 (specifically from the *midpoint* of the pharmacy's fiscal year to the *midpoint* of the common fiscal period, June 30, 2002). The midpoint and terminal month indices used were taken from the U. S. Government Consumer Price Index (CPI), Urban Consumer (see Exhibit 11). The use of inflation factors is preferable in order for pharmacy cost data from various fiscal years to be compared uniformly.

Recent experience with pharmacy cost studies has indicated that the CPI may tend to overstate increases in dispensing cost over an extended time. This appears to be the result of increased cost containment pressures exerted on retail pharmacies by reduced reimbursement from managed care entities. The impact of these cost containment pressures may have been mitigated during the period of the dispensing cost survey by apparent escalations in pharmacists salaries driven, in part, by a perceived pharmacist shortage.

Analysis and Findings

The dispensing costs for all pharmacies in the sample are summarized in the tables and paragraphs following. Findings for all pharmacies in the sample are presented collectively, and additionally are presented for subsets of the sample based on pharmacy characteristics. There are several statistical measurements that may be used to express the central tendency of a distribution, the most common of which are the mean and the median (see sidebar). Findings are presented in the forms of means and medians, both raw and weighted.

In many real world settings such as this dispensing cost survey, statistical "outliers" are a common occurrence. These outlier pharmacies have dispensing costs that are not typical of the majority of pharmacies.

Different Measures of Central Tendency:

Unweighted mean: the arithmetic mean cost for all pharmacies.

Weighted mean: the mean cost of all prescriptions dispensed by pharmacies included in the sample, weighted by prescription volume. The resulting number is the mean cost for all prescriptions, rather than the mean for all pharmacies as in the unweighted mean. This implies that low volume pharmacies have a smaller impact on the weighted mean than high volume pharmacies. This approach, in effect, sums all costs in the sample and divides that sum by the total of all prescriptions in the sample. The weighting factor can be either total prescription volume or Medicaid prescription volume.

Median: the value that divides a set of observations (such as dispensing cost) in half. In the case of this survey, the median is the dispensing cost such that the cost of one half of the pharmacies in the set are less than or equal to the median and the dispensing costs of the other half are greater than or equal to the median.

Weighted Median: This is determined by finding the pharmacy observation that encompasses the middle value prescription. The implication is that one half of the prescriptions were dispensed at a cost of the weighted median or less, and one half were dispensed at the cost of the weighted median or more.

Suppose, for example, that there were 1,000,000 Medicaid prescriptions dispensed by the pharmacies in the sample. If the pharmacies were arrayed in order of dispensing cost, the median weighted by Medicaid volume, is the dispensing cost of the pharmacy that dispensed the middle, or 500,000th prescription.

Medians are often preferred to arithmetic means in situations where the magnitude of outlier values results in a mean that does not represent what is thought of as "average" or normal in the common sense. The measurement that is the most ideally suited for determining the typical cost of dispensing prescriptions to Medicaid recipients is the **median weighted by Medicaid volume.**

For all pharmacies in the sample, dispensing cost findings are presented in Table 3.2.

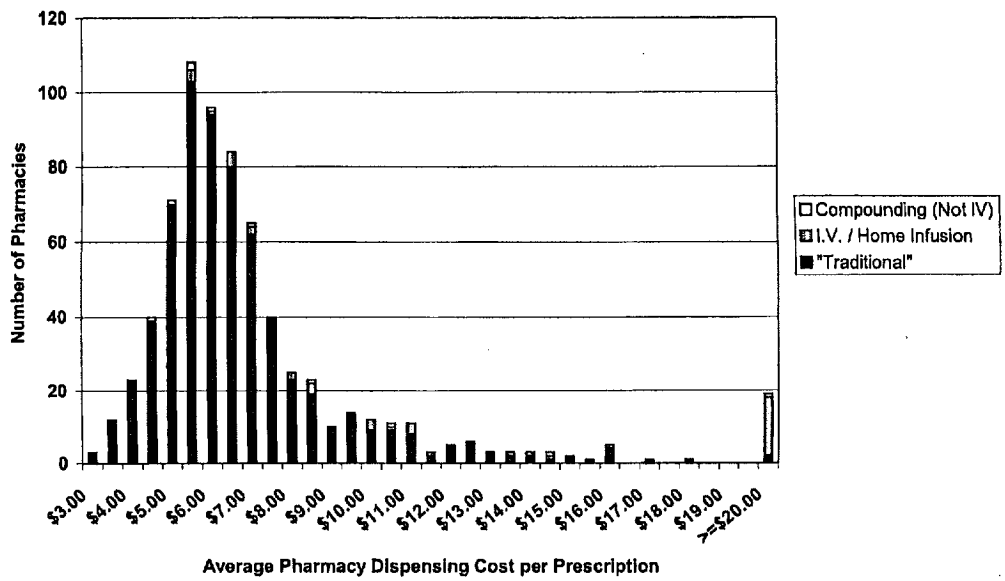
Table 3.2 Cost Per Prescription – All Pharmacies

	Dispensing Cost[1]
Unweighted Mean	$9.12
Mean Weighted by Medicaid Volume	$6.58
Unweighted Median	$6.48
Median Weighted by Medicaid Volume	$6.11

[1] Dispensing Costs have been inflated to the common point of June 30, 2002.

Chart 3.2 is a histogram of the dispensing cost for all pharmacies in the sample. There was a large range between the highest and lowest dispensing cost observed for pharmacies in the sample. The majority of pharmacies (75%), however, had dispensing costs between $4 and $8.

Chart 3.2 Dispensing Cost by Pharmacy



The two most significant characteristics that affected pharmacy dispensing cost were the provision of intravenous or home infusion solutions and the provision of pharmaceutical compounding services. Our analysis revealed significantly higher cost of dispensing associated with the 53 pharmacies in the sample that provided these services.

In every pharmacy dispensing study where information on intravenous solution and home infusion dispensing activity has been collected by Myers and Stauffer,

such activity has been found to be associated with higher dispensing costs. Discussions with pharmacists providing intravenous solutions indicate that the activities and costs involved in filling intravenous prescriptions are significantly different from the costs incurred by the typical retail (or long term care) pharmacy. The reasons for this difference include:

- Costs of special equipment for mixing and storage of intravenous solutions.
- Higher direct labor costs because most intravenous prescriptions must be mixed in the pharmacy, whereas the manual activities to fill a non- intravenous prescription are mainly limited to counting pills (or vials, etc.) and printing and affixing the label.
- A pharmacy may mix and deliver many "dispensings" of a daily intravenous solution from a single prescription, thus incurring additional costs spread over a smaller number of prescriptions.

This latter factor, in particular, can have a dramatic impact on increasing a pharmacy's apparent cost per prescription.

Similar to the dispensing of intravenous prescriptions, the provision of complex pharmaceutical compounding services was also observed to be associated with significantly higher cost.

The differences in dispensing costs which were observed for providers of intravenous or compounding services compared to those pharmacies that did not offer these services are summarized in Table 3.3.

Table 3.3 Cost Per Prescription - Intravenous / Compounding Pharmacies Versus other Pharmacies

Type of Pharmacy	Number of Pharmacies	Unweighted Mean Cost[1]	Standard Deviation
Pharmacies Dispensing Intravenous / Home Infusion Prescriptions	43	$41.75	$72.59
Pharmacies Dispensing Compounded Prescriptions (but not intravenous Rxs)	10	$9.13	$5.48
Pharmacies Not Dispensing Intravenous or Compounded Prescriptions	650	$6.96	$2.46

[1] Dispensing Costs have been inflated to the common point of June 30, 2002.

Based on this analysis and analyses performed in other studies, pharmacies that dispense intravenous or compounded prescriptions as a significant part of their business can have dispensing costs far in excess of those found in a traditional pharmacy. Based on our cost findings, it must be concluded that the costs incurred to dispense intravenous or compounded prescriptions are not representative of the costs incurred by a general pharmacy. If the costs of intravenous and compounding services were to be included in the computation of an mean or median dispensing cost that was then used to establish a reimbursement rate, the effect would be to pay approximately 95% of pharmacies an additional allowance for a service they never provided. And, for those pharmacies providing intravenous services, the marginal increase in the fee would be immaterial in relation to the cost of actually dispensing an intravenous or compounded prescription.[11]

Consequently, many of the analyses that follow exclude providers that had dispensed a significant volume of intravenous or compounded prescriptions. Table 3.4 restates the measurements noted in Table 3.2 excluding pharmacies that dispensed significant volumes of intravenous or compounded prescriptions.

Additional comments regarding pharmacies that dispense intravenous or compounded prescriptions is included in Appendix D.

Table 3.4 Cost Per Prescription – Excluding Intravenous and Compounding Pharmacies

	Dispensing Cost
Unweighted Mean	$6.96
Mean Weighted by Medicaid Volume	$6.16
Unweighted Median	$6.42
Median Weighted by Medicaid Volume	**$5.95**

[1] Dispensing Costs have been inflated to the common point of June 30, 2002.

Analysis of Pharmacy Characteristics

Responding pharmacies were categorized into various groups of interest and their dispensing costs analyzed to determine statistical significance. These characteristics include:

- Total prescription volume
- Chain versus independent pharmacy affiliation
- Urban versus rural pharmacy location

[11] Although typical dispensing fees reimburse less than the dispensing costs of intravenous pharmacies, they are generally able to break even based on the margin allowed on ingredient cost reimbursement. Compounding pharmacies predominantly market their services to self-pay customers and do not solicit Medicaid reimbursement for most compounding services.

- Total Medicaid volume
- Medicaid volume as a percent of total volume
- Provision of unit dose dispensing services
- Provision of prescription drugs to residents of long-term care facilities

One way to determine the statistical significance of differences in dispensing cost between the pharmacies classified by the above referenced characteristics is through the use of a *t*-test. The sample data may show that a certain group of pharmacies has a sample mean lower or higher than another group. Recognizing that the data only represents a sample, a *t*-test is a statistical technique that seeks to determine if the findings are strong enough that a similar relationship can be expected to exist for the entire population. The *t*-test takes into consideration the sample's size, mean, and underlying variance. Although the preference of using a weighted median as a measurement of central tendency was previously explained, a *t*-test requires the comparison of the *unweighted mean* costs.

Exhibit 12 provides additional statistical measures including the standard error of the mean and confidence intervals. Confidence intervals given in Exhibit 12 were calculated using appropriate statistics from the *t* distribution at the 90% and 95% confidence levels. These intervals are a range estimate for the population mean, and are based upon the sample mean, standard deviation, and sample size. A 95% confidence interval identifies the range which one would expect the mean from *any* sample to fall 95% of the time. It can be inferred that there is approximately a 95% probability that the population mean lies within the range of the confidence interval.

All costs referred to in these analyses have been inflation adjusted to the common point of June 30, 2002.

1) Total Prescription Volume

Pharmacies were classified into meaningful groups based upon their differences in total prescription volume. Dispensing costs were then analyzed based upon these volume classifications.

Table 3.5 Pharmacy Total Annual Prescription Volume

Total Annual Prescription Volume of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost
0 to 29,999	158	$8.94	$3.74
30,000 to 59,999	220	$6.67	$1.70
60,000 and Higher	272	$6.05	$0.96

There is a significant correlation between a pharmacy's total prescription volume and the dispensing cost per prescription. For all categories noted above differences in the mean dispensing cost were statistically significant (at the 5% level of significance). This result is not surprising because many of the costs associated with any business, including the dispensing of prescriptions, are fixed in nature, and do not vary significantly with increased volume. For stores with a higher total prescription volume, these fixed costs are spread over a greater number of prescriptions resulting in lower costs per prescription. (A more detailed analysis of cost variations attributable to total prescription volume using statistical regression techniques is presented later in the report.)

2) Chain Versus Independent Pharmacy Affiliation

Of the 650 pharmacies that did not dispense a significant volume of intravenous or compounded prescriptions, 265 were independent pharmacies and 385 were chain pharmacies.

Table 3.6 Chain Versus Independent Pharmacies

Type of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost	Mean Annual Total Prescription Volume
Independent	265	$6.82	$2.83	39,214
Chain	385	$7.07	$2.17	75,850

The use of a *t*-test indicates that the difference in the unweighted means is not statistically significant (at the 5% level of significance).

Also noted in Table 3.6 is the mean prescription volume for independent and chain pharmacies. It is noteworthy that the mean volume of chain pharmacies in the sample is approximately 93% greater than the mean volume observed for independent pharmacies.

3) Urban Versus Rural Pharmacy Location

Myers and Stauffer used the urban versus rural status designated in the provider file by the Commission. Table 3.7 shows calculated dispensing cost and standard deviation for pharmacies categorized by their urban versus rural location.

Table 3.7 Urban Versus Rural Pharmacy Location

Location of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost	Mean Annual Total Prescription Volume
Urban	460	$7.10	$2.55	67,890
Rural	189	$6.64	$2.21	43,520

Note: Excludes out of state pharmacies that participate in the Texas Vendor Drug Program.

The use of a *t*-test indicates that the difference in the unweighted means is statistically significant (at the 5% level of significance).

Previously it was noted that the process of selecting pharmacies into the sample to be surveyed included some stratification protocols to ensure adequate representation of pharmacies in rural Texas counties. Because of the observed differential in dispensing cost between urban and rural pharmacies, measurements of dispensing cost that combine urban and rural pharmacies should be considered in light of possible skewing in favor of rural pharmacies.

As an additional analysis of pharmacy dispensing cost by location, pharmacies were grouped into regional classifications (see Table 3.8 and Chart 3.3).

Table 3.8 Dispensing Costs by Medicaid Subregion [1]

Location of Pharmacy (Region)	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost	Mean Annual Total Rx Volume	Mean Medicaid Rx Volume as % of Total Rx Volume
1. Houston – West	37	$7.66	$4.62	72,421	13%
2. Tyler	48	$6.46	$2.12	59,403	22%
3. Austin	56	$6.60	$1.72	72,770	11%
4. San Antonio – West	33	$7.04	$1.89	70,452	17%
5. Fort Worth	43	$7.22	$2.30	74,809	5%
6. El Paso	43	$7.21	$2.70	56,135	23%
7. Dallas	53	$8.33	$2.79	57,224	7%
8. Brownsville / Corpus Christi	50	$6.57	$1.68	56,399	42%
9. Abilene / Wichita Falls	40	$7.22	$3.01	46,837	14%
10. San Antonio – East	45	$6.65	$2.26	55,921	10%
11. Amarillo / Lubbock	53	$6.82	$2.18	42,740	14%
12. Arlington	52	$7.50	$2.44	65,697	10%
13. Beaumont / Galveston	45	$6.03	$1.39	58,585	10%
14. Houston – North	51	$6.36	$1.78	65,348	12%

1. Pharmacy subregion codes were defined in the pharmacy address file provided by the Texas Health and Human Services Commission. Subregion descriptions use city names to indicate an approximate geographical location of the subregion. Out of state pharmacies not included in regional breakdown.

Several of the differences observed in the regional breakdown of dispensing cost were statistically significant (at the 5% level of significance). It is also noted that there is some variation in the mean total prescription volume between the various

regions. Furthermore, the distribution of Medicaid volume was highly skewed towards certain regions. For example, the mean Medicaid utilization ratio of Region 8 (Brownsville / Corpus Christi) pharmacies in the sample was 42% compared to an overall mean Medicaid utilization ratio of 15%. In other regions, the mean Medicaid utilization ratio for pharmacies in the sample was as low as 5% to 10%.

4) Medicaid Prescription Volume

Pharmacies were also classified based upon their Medicaid prescription volume. Medicaid volume was supplied to Myers and Stauffer by the Health and Human Services Commission.

Table 3.9 Pharmacy Annual Medicaid Prescription Volume

Annual Medicaid Prescription Volume of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost
0 to 1,999	159	$8.40	$3.34
2,000 to 10,000	344	$6.70	$2.03
10,000 and Higher	147	$6.02	$1.39

For the classifications shown, some differences in the mean dispensing cost were found to be statistically significant (at the 5% level of significance). It should be noted, however, that there is a correlation between Medicaid volume and total prescription volume. The relationship noted with regard to Medicaid volume, is a function of total prescription volume rather than Medicaid volume alone.

5) Medicaid Prescription Volume as a Percent of Total Prescription Volume

A better measure of the effect of a provider's Medicaid volume was to use Medicaid volume as a percent of total volume. To facilitate this analysis, pharmacies were arrayed into meaningful classifications of Medicaid utilization.

Table 3.10 Pharmacy Medicaid Utilization Ratio

Medicaid Prescription Volume as a Percent of Total Volume	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost
0.0% to 9.9%	338	$7.11	$2.20
10.0% to 24.9%	194	$6.66	$2.16
25.0% and Higher	118	$7.06	$3.44

The differences in the sample means shown in Table 3.10 were not statistically significant (at the 5% level of significance) such that it can be inferred that a relationship between the Medicaid utilization ratio dispensing cost exists.

Anecdotally, pharmacists have reported that high labor input is required to meet the requirements of dispensing Medicaid prescriptions. For example, the process of securing prior authorization approval was commonly mentioned as being time intensive. Although there are obviously costs associated with this type of activity, the survey data does not show any systemically higher costs associated with pharmacies that dispense higher percentages of Medicaid prescriptions.

6) Provision of Unit Dose Dispensing Services

Pharmacies were classified by whether or not they provided prescription drugs in unit dose packaging.

Table 3.11 Provision of Unit Dose Prescription Services

Type of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost
Provides Unit Dose Services	206	$6.76	$2.30
Does Not Provide Unit Dose Services	444	$7.06	$2.53

The differences in the unweighted sample means observed here were **not** statistically significant (at the 5% level of significance).

7) Retail Versus Institutional Pharmacies

Pharmacies were classified by whether or not they provided a significant number of prescriptions to residents of long-term care facilities (based on analysis of Texas Medicaid provider file designations and other indications of nursing facility dispensing).

Table 3.12 Retail Versus Institutional Pharmacies

Type of Pharmacy	Number of Stores	Unweighted Mean Cost	Standard Deviation of Cost
Retail	622	$6.93	$2.39
Institutional	28	$7.68	$3.70

Despite the apparent differences in mean dispensing cost, the differences in the unweighted sample means observed here were **not** statistically significant (at the 5% level of significance). Additional comments regarding institutional pharmacies are included in Appendix D.

Multivariate Analysis

The analyses described above tested for significant differences in cost by analyzing one pharmacy attribute at a time. A more sophisticated method to analyze the impact of pharmacy characteristics upon dispensing cost is to use a multivariate regression analysis. In such an analysis, it is possible to control for factors known to affect dispensing cost, such as total prescription volume, and determine if other factors have a significant impact on dispensing cost. It is possible for an attribute to not be statistically significant in a *t*-test, but still be shown to have some effect on dispensing cost in a multivariate analysis (or vice versa).

Several analyses were conducted to identify potential correlation between pharmacy dispensing cost and certain pharmacy traits. These analyses used a multivariate stepwise linear regression technique. Using this approach, it is possible to control for factors known to affect dispensing cost, and at the same time test for the significance of any effect on dispensing cost caused by other traits. This approach allows for a more robust analysis of the potential influence of pharmacy characteristics on dispensing cost than can be achieved by *t*-tests alone. The traits that were used in the analysis included:

- Prescription sales volume
- Type of location
- Type of affiliation
- Type of ownership
- Unit dose delivery systems
- Delivery service
- Level and percent of Medicaid volume
- Total prescription volume
- Pharmacy building ownership
- Geographic location
- Provision of intravenous prescription dispensing services
- Provision of compounding services
- Hours open
- Length of operation at location
- Percent of prescriptions dispensed paid by third party payers
- Percent of prescriptions dispensed to residents of long-term care facilities

The attributes which proved to be the most significant were:

- Total prescription volume
- Provision of intravenous services
- Provision of compounding services

The relationship between total prescription volume and dispensing cost was especially pronounced. A linear model to predict total prescription dispensing costs based on prescription volume alone was able to explain over 80% of the variation in dispensing costs. Linear regression methods indicate that the regression equation which best describes the relationship of total prescription volume and total dispensing cost is:

Total Costs (inflated)= $ 59,306 + $5.30x (Total Prescription Volume)[12]

Chart 3.3 Relationship Between Total Costs and Total Prescription Volume

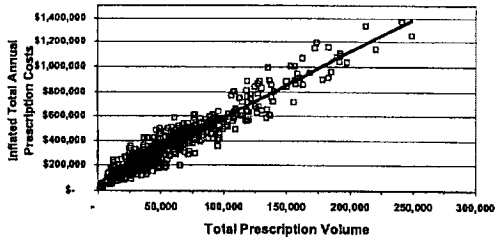
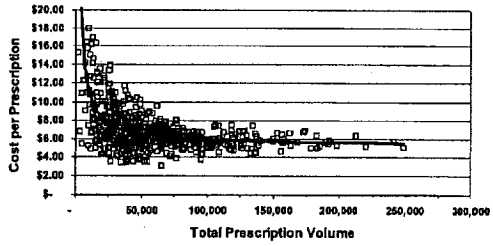


Chart 3.4 Relationship Between Cost per Prescription and Total Prescription Volume



This result implies that there are fixed costs of $59,306 and variable costs of $5.30 per prescription associated with the "typical" pharmacy. The mean total prescription volume for pharmacies was approximately 59,500. For such a pharmacy, total prescription costs predicted by the equation are approximately $375,000, or $6.30 per prescription. Clearly, for pharmacies with a high total prescription volume, fixed costs per prescription decrease. Conversely, low volume pharmacies have greater fixed costs per prescription (see Charts 3.3 and 3.4).

No other attribute contributed more than 2% to the predictive power of the linear regression techniques after controlling for the variation of total prescription volume. After controlling for the efficiency impact of prescription volume, there

[12] Excludes pharmacies which dispense a significant volume of intravenous, home infusion or compounded prescriptions. The regression equation shown above was produced using an iterative regression technique that excluded some statistical outliers that would have had the effect of distorting the regression equation.

was some correlation between the provision of delivery services with higher overhead costs[13]. Additionally, the same methodology found that chain pharmacies and pharmacies in urban areas tended to have higher labor cost inputs after controlling for volume-based efficiencies.

Components of Cost

The dispensing costs of the surveyed pharmacies were broken down into the various components of overhead and labor related costs. More information on this subject is included in Appendix B.

Comparison to Other Dispensing Cost Surveys and Economic Analysis

Myers and Stauffer has conducted several surveys of dispensing cost in other states in recent years. Data from the Texas and other surveys were compared to ascertain the similarities and differences in pharmacy dispensing cost in the state of Texas as compared to other states. Of particular interest was the level of labor related costs that were observed.

There has been some widespread reporting in the profession regarding a pharmacist "shortage" and there is considerable discussion of this trend in industry literature[14]. This shortage has apparently been caused by the recent increase in overall prescription volume nationwide, rapid growth of retail pharmacy outlets, and a decline in pharmacy school graduation rates.

It would appear that the tight pharmacist labor market has had an impact on pharmacist salaries in Texas. Recent experience with pharmacist salary survey data in other states indicates salary and benefit increases in the range of 15% to 20% over the last several years. In contrast, the change in overhead costs in recent years has been less pronounced. In part, this is because increases in overhead costs have been restrained due to cost containment pressures exerted by some commercial insurance and managed care entities. Additionally, modest increases in overhead cost have been somewhat mitigated by recent increases in pharmacy prescription volume and the enhanced efficiency that is typically a by-product of higher prescription volume.

The current survey is based on pharmacy fiscal data primarily from calendar year 2001. Calendar year 2000 and the first part of calendar year 2001 corresponds

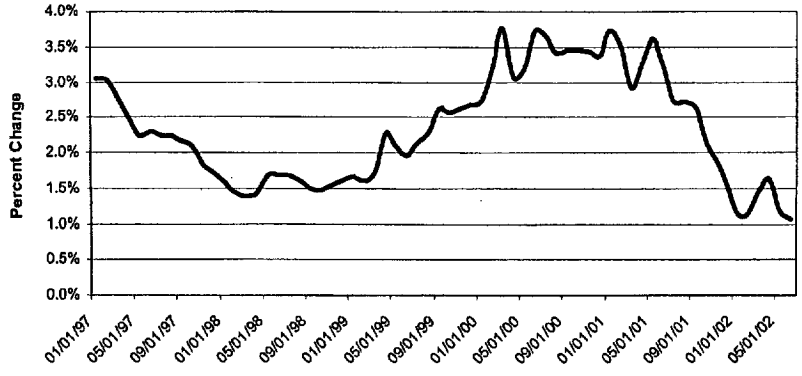
[13] Due to the way pharmacies tended to report delivery related costs on the cost survey, it was not possible to discretely identify the portion of cost associated exclusively with delivery service at all pharmacies. In many cases, delivery related costs (e.g. vehicle related expenses, gasoline, driver labor costs) were inseparable from other non-delivery related dispensing costs. However, average dispensing cost cited in the study is always inclusive of delivery cost.

[14] Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, "Report to Congress. The Pharmacist Workforce: A Study of Supply and Demand for Pharmacists." December 2000.

with the period during which general economic trends were resulting in a tight labor market and subsequent wage inflation. During 2001 and 2002, economic trends have changed significantly with strong indications of a recession in progress. There has been a dramatic softening of the labor market that will very likely lead to a slowdown in the rate of increase for wages. It is therefore possible that the rate of increase in labor cost noted in recent years is a unique phenomenon and that rates of increase for labor cost will return to more normal levels in the years ahead.

It is also noted that the overall rate of inflation, as measured by the CPI, has been considerably lower since mid-2001 as compared to the previous 18 months (see Chart 3.5). In a broad economic scope, this peak of inflationary pressures during 2000 and early 2001 was associated with high energy costs and wage inflation resulting from a tight labor market. Although some of this inflationary period occurred after the time period for which pharmacies reported their costs for the current survey, they do have a significant impact on the inflation factors that were used to trend forward the financial data to calendar year 2002.

Chart 3.5
Consumer Price Index (CPI-U)
Percentage Change from Previous 12 Months
Source: Bureau of Labor Statistics



Summary

To summarize, the significant findings from the dispensing cost survey are as follows:

- **The statewide median cost of dispensing[15], weighted by Medicaid volume, was $5.95.**
- Average dispensing cost at certain pharmacy specialties was observed to be higher than dispensing cost at "typical" retail pharmacies. In particular we noted higher dispensing cost associated with pharmacies that provided services related to the dispensing of intravenous, home infusion and compounded prescriptions.
- There was an association between dispensing cost and the urban or rural location of a pharmacy. Pharmacies in urban areas tended to have higher dispensing costs. This was noted to be particularly the case for labor related costs.
- No association was found between dispensing cost and unit-dose packaging or other measures of long term care dispensing activity; i.e., ambulatory and long term care pharmacies had similar mean costs of dispensing.
- No systematically higher costs associated with pharmacies that have a higher percentage of Medicaid prescription volume were found.

Table 3.13 Inflation Adjusted Mean Dispensing Cost

Period	Midpoint	Inflation Adjusted[A] Median[B] Dispensing Cost[C]
Calendar Year 2002	6/30/2002	**$5.95**
State Fiscal Year 2003 (Ending 8/31/2003)	2/28/2003	$6.04
Calendar Year 2003	6/30/2003	$6.10
State Fiscal Year 2004 (Ending 8/31/2004)	2/28/2004	$6.19

[A] Inflation factors are based on the CPI, All Urban. Future inflation projections are based on the CPI, All Urban, as published in *Health Care Cost Review, Fourth Quarter 2001* by Standard & Poor's DRI.
[B] Weighted by Medicaid prescription volume.
[C] Excludes pharmacies that dispensed intravenous, home infusion or compounded prescriptions.

[16] Dispensing costs have been inflated to the common point of June 30, 2002. Excludes pharmacies that dispensed a significant amount of intravenous, home infusion or compounded prescriptions.

Appendix A. Development of the Dispensing Cost Survey Methodology

The methodology used for conducting the survey of pharmacy dispensing costs is presented in Chapter 3 of the report. The following tables provide background information regarding the development of the methodology and references to other surveys and publications which provide discussion regarding the calculation of pharmacy dispensing cost and related matters.

Table A.1 Academic References to Pharmacy Dispensing Cost Studies

Gagnon, Jean Paul, "Prescription Department Cost Analysis." Pharmacy Management 151 (Sept. – Oct., 1979): 235-40.
Carroll, N.V. "Costs of Dispensing Private-Pay and Third-Party Prescriptions in Independent Pharmacies." Journal of Research in Pharmaceutical Economics 1991;3(2):3-16
Carroll, N.V. "Forecasting the Impact of Participation in Third-Party Prescription Programs on Pharmacy Profits." Journal of Research in Pharmaceutical Economics 1991;3(3):3-23
Huey, Cheryl; Jackson, Richard; Pirl, Margaret, "An Analysis of the Impact of Third-Party Prescription Programs on Community Pharmacy." Journal of Research in Pharmaceutical Economics 1995;6(2):57-72
Schommer, Jon et. al., "1999 Minnesota Pharmacist Compensation and Labor Survey: Part 1, Pharmacists' Hourly Wages and Benefits." University of Minnesota College of Pharmacy, 1999.
Wen, Lonnie k. et. al., "A Survey of Operational Costs Incurred by Home Infusion Pharmacies." Infusion, May 1997 pp. 44-51.

Table A.2 Cost Allocation Methodologies Commonly Used in Health Care Settings

Type of Cost	Statistical Basis Used for Pharmacy Survey	Statistical Basis Used in Medicare Cost Reporting
Capital Related (e.g. depreciation, rent, repairs, real estate taxes)	Square Footage	Square Footage
Utilities	Square Footage	Square Footage
Interest, Insurance, telephone, supplies, accounting and legal fees	Revenue	Revenue, Accumulated Costs
Labor	Hours Worked	Hours Worked

Table A.3 Pharmacy Dispensing Cost Surveys Using Similar Cost Allocation Methodologies

Report Date	Title of Published Report	Organization / Individuals Performing Survey	Survey Sponsor
May 1990	An Assessment of Chain Pharmacies' Cost of Dispensing a Third Party Prescription	Pharmaceutical Economics Research Center; School of Pharmacy and Pharmaceutical Sciences; Purdue University; Kenneth W. Schafermeyer; Stephen W. Schondelmeyer; Joseph Thomas III	National Association of Chain Drug Stores
March 1991	Reimbursement for Pharmaceutical Services in Missouri	University of Missouri – Kansas City School of Pharmacy - Ashok K. Gumbir, Ph. D.; Johnny L. Anderson, Ph. D. (candidate)	Missouri Department of Social Services – Division of Medical Care
June 1994	Pharmacy Reimbursement Rates: Their Adequacy and Impact on Medicaid Beneficiaries	E. Kathleen Adams, Ph. D.; Norma Gavin; SysteMetrics; David H. Kreling, Ph. D.	Health Care Finance Administration

(Additionally, Myers and Stauffer has performed approximately 40 studies of pharmacy dispensing cost in approximately 18 states.)

Appendix B. Components of Pharmacy Dispensing Cost

Information on prescription dispensing cost was collected on the cost survey in individual expense categories. We analyzed the various components of the average dispensing cost for the pharmacies in the sample. Table B.1 and Charts B.1 and B.2 display the various cost components of the mean costs for pharmacies in the sample. Mean costs shown are weighted by Medicaid prescription volume.

Expenses were classified as follows:

- Owner professional labor – owner's labor costs were subject to constraints in recognition of its special circumstances as previously noted.
- Employee professional labor consists of employee pharmacists.
- Other labor includes the cost of delivery persons, interns, technicians, clerks and any other employee with time spent performing the prescription function of the pharmacy.
- Building and equipment expense includes depreciation, rent, ownership costs, repairs, utilities and any other expenses related to building and equipment.
- Prescription-specific expense includes pharmacist-related dues and subscriptions, prescription containers and labels, prescription-specific computer expenses, continuing education, and any other expenses that are unique to the prescription dispensing business.
- Other business expenses consist of all other expenses that were allocated to the prescription dispensing function of the pharmacy including interest, insurance, telephone, and legal and professional fees.

Table B.1 Components of Prescription Dispensing Cost[1]

Type of Expense	Chain Pharmacies	Independent Pharmacies
Owner Professional Labor	$0.00	$1.54
Employee Professional and Other Labor	$4.42	$2.49
Building and Equipment	$0.56	$0.60
Prescription Specific Expenses	$0.49	$0.63
Other Business Expenses	$0.74	$0.87
Total	$6.21	$6.13

[1] Excludes pharmacies which dispensed intravenous, home infusion or compounded prescriptions.

Clearly, the single largest component of cost is labor with both independents and chain pharmacies spending between 70% and 80% of their overall prescription costs on labor related costs. Chain pharmacies tend to have a larger portion of their labor costs devoted to professional labor compared to independents which tended to have higher "other" labor (which is partially explained by labor costs for delivery services). Otherwise, the distributions of costs between chain and independent pharmacies were similar.

Chart B.1 Components of Cost per Prescription for Chain Pharmacies

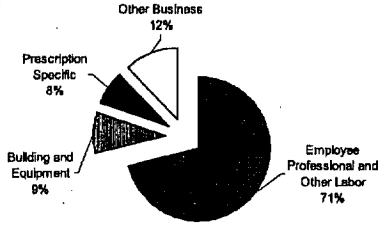
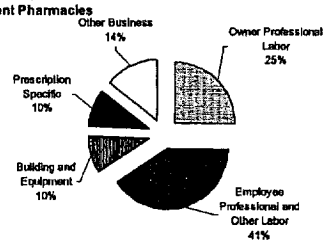


Chart B.2 Components of Cost per Prescription for Independent Pharmacies



Appendix C. Summary of Pharmacy Attributes

A number of pharmacy attributes were collected on the cost survey. Many of these attributes were used during the review of the cost survey, and also allowed for an analysis of the variations in cost. In the following table, many of these attributes are summarized for informational purposes without any discussion as to their relationship to dispensing cost.

Table C.1 Summary of Pharmacy Attributes

Attribute	Number of Pharmacies Responding Affirmatively	Mean for Pharmacies Responding Affirmatively
Provision of Delivery Services	326	32% of prescriptions
Provision of Delivery Services for Medicaid Recipients	309	37% of Medicaid prescriptions
Provision of Unit Dose Services	234	28% (approximately 93% of unit dose prescriptions were reported to haven been prepared in the pharmacy; 7% were purchased already prepared from a manufacturer)
Provision of Compounding Services	427	5% of prescriptions (27 pharmacies reported compounding for 10% or more of prescriptions dispensed – for these 27 pharmacies, the mean was 43%). Many pharmacies reported a nominal amount of compounding by reported "1%" or "less than 1%".
Provision of Prescriptions to Nursing Homes	260	21% of prescriptions
Provision of intravenous / Home Infusion Services	57	34% of prescription sales (43 pharmacies had IV sales greater than 1% of prescription sales – for these 43 pharmacies, the mean was 45%)
Provision of 24 Hour Emergency Services	273 (39%)	N/A
Hours Open Per Week	701	67 hours
Years Open at Current Location	694	15 years
Allows sales on credit[16]	365 (52%)	N/A
Percent of Prescriptions to Third Party Payers	621	79 %

Appendix D. Dispensing Cost Issues for Institutional, Intravenous, Home Infusion and Compounding Pharmacies

Based on previous experience performing dispensing cost studies, Myers and Stauffer has become aware of specific concerns relating to the dispensing costs of certain pharmacy specialties. Paramount among the concerns expressed are the dispensing costs of pharmacies that dispense prescriptions to residents of long-term care facilities, pharmacies that dispense intravenous or home infusion prescriptions, and pharmacies that provide specialty prescription compounding services. This appendix includes a discussion of issues specific to these pharmacy types.

Institutional Pharmacies

The survey data supported the conclusion that there was not a statistically significant difference in dispensing cost for pharmacies that primarily serviced long-term care facilities versus pharmacies with a more traditional retail structure. It was noteworthy that these institutional pharmacies are operated in a distinctly different manner than a traditional retail pharmacy. One primary consideration is that these pharmacies tended to be very high volume pharmacies. As noted previously in the report, pharmacies with a high prescription volume tend to be more efficient with lower dispensing costs per prescription.

Institutional pharmacies typically provide services not offered in many retail pharmacies. This includes a heavier reliance on delivery services and unit dose dispensing systems. While there may be higher labor and overhead costs associated with the prescription delivery and packaging of unit dose prescriptions, there are also efficiencies associated with the "assembly line" production style of the pharmacy. In contrast, traditional retail pharmacies dispense prescriptions "one at a time" as customers come to the store or as physician office calls are received. The greater control over the queuing of prescription requests in an institutional pharmacy creates a significant advantage in terms of scheduling the optimal amount of labor required to perform prescription dispensing functions.

It is also noteworthy that institutional pharmacies often provide other services to nursing homes beyond the typical prescription dispensing services offered in a retail pharmacy. This includes the services of a consultant pharmacist in the

[16] Myers and Stauffer tried to delineate the issue of allowing prescription sales on credit to imply that a pharmacy maintained its own accounts receivables balance as opposed to merely accepting credit cards as a form of payment. However, there apparently was some confusion on this issue; therefore the results obtained do not appear to represent "sales on credit" in the manner intended.

long-term care facility as well as medication carts, emergency medication kits and various expanded inventory control procedures. It is also significant to note that these additional services are provided as the result of a direct contractual relationship between the institutional pharmacy and the long-term care facility. Remuneration to the pharmacies for these services is subject to the provisions of those contractual relationships. Consequently, any cost for these pharmaceutical consulting services would be reported to Medicaid via the *nursing facility cost report*. It would therefore be inappropriate to include these consulting services in a survey of the cost of *dispensing* prescription medications. To the extent that such costs could be explicitly identified, the costs associated with consultant pharmacists were not included in the analysis of dispensing cost.

Intravenous and Home Infusion Pharmacies

A small number of pharmacies that responded to the dispensing cost survey indicated that a significant portion of their business consisted of filling intravenous or home infusion prescriptions. In every dispensing cost survey performed by Myers and Stauffer in which data on the provision of intravenous services was collected, the provision of this service has been associated with higher dispensing costs.

There is some difficulty, however, in determining an average dispensing cost for this type of activity with any degree of stability. Reasons for this include the following:

- There is a significant inconsistency in the way in which pharmacies count the number of intravenous prescriptions dispensing. A pharmacy may mix and deliver many "dispensings" of a daily intravenous solution from a single prescription, thus incurring additional costs spread over a smaller number of prescriptions. Alternatively, some pharmacies count each daily dispensing individually.
- Many pharmacies that dispense intravenous prescriptions also dispense traditional prescriptions. The task of segregating intravenous and traditional dispensing costs is made difficult by the combined approach to financial and prescription record keeping which make it difficult to isolate costs associated with the dispensing of intravenous prescriptions.
- Based on a review of the literature, there is also considerable variability in the labor and equipment cost inputs into various types of intravenous prescriptions.

Because of these factors, Myers and Stauffer has typically seen extreme variation in the dispensing cost calculated for pharmacies that provide intravenous prescription services. In the current survey, the dispensing cost in the 43 responding pharmacies that dispensed intravenous prescriptions ranged from approximately $6.00 to over $100. The mean dispensing cost was $41.75, but it should be noted that this mean is highly unstable (i.e. there was a very high standard deviation).

One of the reasons it is difficult to determine a stable average dispensing cost for pharmacies that provide intravenous prescriptions is the low number of pharmacies for which data is collected in each survey. Additionally, the proportion of intravenous prescriptions filled at each pharmacy is highly variable.

To better understand dispensing cost in these pharmacies, Myers and Stauffer performed an analysis of the dispensing cost from data collected on over 100 surveys in recent years (inflation adjusted to calendar year 2002). Data for this analysis includes pharmacies in Texas, but was also supplemented by data from other states. Although each of these pharmacies had indicated on the survey forms that they dispensed intravenous prescriptions, most of these pharmacies also dispensed traditional prescriptions as well. After calculating a cost of dispensing for each pharmacy, statistical regression techniques were used in an attempt to isolate the costs associated strictly with the dispensing of intravenous prescriptions.

Although the analysis should not be considered comprehensive, the data suggests that dispensing costs ranging from $20 to $40 per intravenous prescription would be considered typical. In addition to variable states of efficiency in these pharmacies, it should be noted that there are various levels of complexity associated with dispensing intravenous prescriptions. A pharmacy's utilization mix of dispensing various types of intravenous prescriptions can have a significant effect on dispensing cost. It is therefore possible that some pharmacies could very well have dispensing costs in excess of $40 per prescription.

Under current policies, the Health and Human Services Commission reimburses for intravenous prescriptions in a dispensing fee plus ingredient reimbursement formula similar to traditional retail prescriptions. Although dispensing costs at intravenous pharmacies appears to be in excess of the current base dispensing fee ($5.27), this reimbursement methodology has been accepted by these pharmacies likely due to the inventory management add-on to the dispensing fee (which can be significant on the expensive drugs traditionally dispensed in intravenous forms) and the margin on ingredient reimbursement which has allowed pharmacies to offset any shortfall from the base dispensing fee.

In recent years, some states have dealt with the issue of intravenous prescription reimbursement rates *in light of reduced ingredient reimbursement*. For example, the state of Utah recently adopted "revised AWPs" for certain products based on the recommendations of the United States Department of Justice and the National Association of Medicaid Fraud Control Units (NAMFCU).[17] Products with these "revised AWPs" were primarily injectable, infusion, and inhalation drugs. Subsequent to the adoption of these prices, intravenous and home infusion pharmacies alleged that the margins on ingredient reimbursement were no longer sufficient such that they could accept the typical Medicaid dispensing fee. As a result of these allegations, the state of Utah created alternate

[17] "Medicaid's Use of Revised Average Wholesale Price." Department of Health and Human Services, Office of the Inspector General, OEI-03-01-00010, September 2001.

dispensing fees primarily for home infusion pharmacies. The rates were set through a negotiated process and varied based on the perceived level of input costs required to fill the prescription. Table D.1 shows the various dispensing fee categories created by Utah Medicaid.

Table D.1 Utah Medicaid Home Infusion Drug Categories[18]

Dispensing Fee Category	Level of Service	Current Dispensing Fee
Category 'B' or 'C'	Traditional: technician input point-of-sale; pharmacist input; fixed overhead costs	$3.90 or $4.40
Category 'J'	Dispensing fee B or C plus: Labor II factor; clinical monitoring; prefilled syringes/PB; horizontal hood; technician input	$8.90
Category 'K'	Dispensing fee J plus: Clinical monitoring; quality assurance; labor factor	$18.90
Category 'L'	Dispensing fee K plus: Replacement into individual doses such as syringe; recalculations from vial to syringe to bag; large bulk inventory costs; peer review	$22.90
Category 'M'	Dispensing fee L plus: Double gloves; gown; vertical hood; labor factor V; OSHA documentation; special handling; special storage; clean room; hazardous waste	$33.90

The Utah Medicaid home infusion dispensing fee methodology has the advantage that dispensing fee reimbursement is more closely tied to actual dispensing costs. It has the disadvantage that it necessitates increased complexity for the claims adjudication process. It is noteworthy to emphasize that the Utah rates were established based on a negotiated process rather than being based on a survey of actual costs and that the rates were created only because of significant cuts in ingredient reimbursement such that the margin on ingredients for intravenous prescriptions was reduced.

[18] Derived from Utah Medicaid State Plan Amendment documents and discussions with Utah Medicaid officials.

Compounding Pharmacies

A small number of pharmacies that responded to the dispensing cost survey indicated that a significant portion of their business consisted of filling compounded prescriptions. Survey data indicated that this practice was associated with statistically significant higher dispensing costs.

The observation that the practice of compounding prescriptions resulted in higher dispensing cost is not surprising given the special labor and equipment needs that are required in this type of pharmacy practice. Preparation time for individual compounded prescriptions, though highly variable depending upon the specific task, tend to be higher than the time associated with filling "traditional" prescriptions in pre-manufactured tablet, capsule, or liquid (etc.) forms. Additionally, the practice of pharmacy compounding does require some additional expensive equipment such as clean rooms for sterile preparation, sensitive scales, and other equipment for making special pharmaceutical dosage forms.

The practice of pharmaceutical compounding has proven to be somewhat controversial given the perception of a fine line between "compounding" and "manufacturing". The U.S. Food and Drug Administration has imposed some limits relating to the practice and advertising of compounding services.

Despite these restrictions, the practice of compounding is appealing to many pharmacists, not only because the practice is perceived to be a return to a historical form of pharmacy practice, but also because compounding is a niche business, which, if successful, can yield high margins. In part, these high margins are due to the promotion of compounding services primarily to cash customers, often in more affluent areas. In some aspects, pharmacy compounding appeals to those seeking "alternative" forms of medical treatments and provides traditional medications in non-traditional forms or in a form free of dyes or other perceived allergens.

Compounding pharmacies have made only minimal attempts to promote wide acceptance of third-party coverage for compounded pharmaceuticals. Primarily, this appears to be related to a desire to avoid reimbursement limitations that could be imposed by a broad acceptance of third party reimbursement plans and fee schedules based primarily on ingredient cost. Compounding pharmacists seem to prefer to maintain the relatively high margins and billing simplicity associated with cash-paying customers. Additionally, because of the potential for billing complexities associated with compounded prescriptions (which sometimes cannot be captured with ease using typical pharmacy claim forms), pharmacies have experienced difficulty in establishing acceptable standards for transmitting suitable claims data that is compatible with the electronic claims processing standards used by most third party payers.

Due to the apparent variability in the cost associated with dispensing compounded prescriptions, a single dispensing fee for compounded prescriptions may be less ideal for matching reimbursement with actual costs incurred. The primary variable that determines dispensing cost incurred by a pharmacy is the amount of professional time required to prepare a particular compounded prescription. A more limited amount of cost variability can be attributed to the special equipment needs of certain preparations. To determine the precise mix of cost inputs into the various types of compounded prescriptions would require some type of time and motion study, the cost of which may be unjustified given the relatively small volume that would be associated with compounded prescription volume.

Given these limitations, a negotiated fee or set of fees is likely to be a preferable means of setting rates for compounding services. Such a fee could be linked to specific types of prescriptions or could be linked to professional time expended with reasonable upper limits. The inclusion of certain compounding services under prior authorization protocols to determine medical necessity may also be appropriate if modifications to dispensing fees for compounding services are considered.

Table of Exhibits